Methods: Pre- and postprocedural MSCT was performed in 40 patients. TAVI size selection was done on the basis of anulus cross sectional measurements by MSCT so that the nominal TAVI device CSA always exceeded the anNulus CSA. In preprocedural data sets we determined the valve calcium score, the CSA and the ovality index of the aortic anulus. In postprocedural data sets maximum and minimum diameter and the degree of circularity at three levels (ventricular end, anulus, aortic end) was determined.
Results: The average expansion ratio of the Edwards Sapien XT device was 95% and the circularity Index was 97%. In multivariate regression analysis neither calcium score nor ovality index of the native anulus were associated with under or non circular expansion of the device. The only parameter predicting underexpansion was the degree of oversizing. Underexpansion of the device was not associated with increased transaortic pressure gradients or with the incidence of paravalvular aortic regurgitation. The degree of oversizing was however positiveley associated with the incidence of new conduction disturbances. In the entire cohort no aortic regurgitation > mild was observed.
Conclusions: MSCT guided TAVI device sizing is associated with almost complete and symmetric expansion of the Edwards Sapien XT device and the absence of significant aortic regurgitation. Calcification or ovality of the native anulus do not influence the expansion pattern. To rigorous device oversizing however is associated with new conduction disturbances and device underexpansion.

TCT-809

Impact of New Conduction Defect After TAVI on Left Ventricular Function at 1-Year Follow-up

Rainer Hoffmann[1], Rüdiger Autschbach[1], Ralf Herpertz[1], Sharam Lotfi[1], Nikolaus Marx[1]
[1]University Aachen, Aachen, Germany

Background: New left bundle branch block (LBBB) or need for permanent pacing due to AV-block are frequent after transcatheter aortic valve implantation (TAVI). This study evaluated the impact of new conduction defect after TAVI on the evolution of left ventricular (LV) function during one year follow-up.
Methods: A total of 90 consecutive patients treated with TAVI and 12 months echocardiographic follow-up were included in the study. In 39 patients a new conduction defect (new LBBB or need for permanent pacemaker activity) persisted one month after TAVI. In 51 patients no persistent new conduction defect was observed. 2D echocardiography using parasternal short-axis, apical 4-chamber and 2-chamber views was performed before TAVI and at 1 year follow-up to determine left ventricular volumes and ejection fraction based on Simpson's rule. Speckle-tracking echocardiography was applied using standard LV short-axis images to assess the effect of new conduction defect on time-to-peak radial strain of different LV segments as parameter of LV dyssynchrony.
Results: New conduction defect resulted in marked heterogeneity in time-to-peak strain between the 6 analysed short-axis segments. During one year follow-up after TAVI there was a significant increase in LVEF in patients without new LBBB (53±11% pre to 59±10% at follow-up; p<0.001), while there was no change in LVEF in patients with new conduction defect (52±11% pre to 51±12% at follow-up, p=0.740). Change in LV endsystolic volume was also significantly different between patient groups (−1.0±14.2 vs. −11.2±15.7 ml, p=0.042). New conduction defect was an independent predictor of reduced LVEF at 12 months follow-up after TAVI.
Conclusions: LVEF improves after TAVI for treatment of severe aortic stenosis in patients without new conduction defect. In patients with a new conduction defect after TAVI, there is no improvement in LVEF at follow-up.

TCT-810

Assessment of Doubtful Aortic Stenosis by Measuring Simultaneous Transaortic Pressure: A Pilot Study With Fractional Flow Reserve Guidewire

Romain Chopard[1], Marie-France Seronde[1], Sebastien Janin[1], Philoktimon Plastaras[1], Nicolas Meneveau[1], Francois Schiele[1]
[1]University Hospital Besancon, France, Besancon, France

Background: Transthoracic echocardiography (TTE) is the reference technique for evaluating aortic stenosis (AS), but in certain cases, estimation of the average gradient and aortic valve area can be difficult. We aimed to assess the feasibility and utility of measuring simultaneous transaortic pressure using a fractional flow reserve (FFR) guidewire in doubtful aortic stenosis.
Methods: Between January 2009 and December 2011, 57 patients with symptoms possibly related to severe AS that was poorly evaluated by echocardiography underwent right and left heart catheterization for assessment of aortic valve area with the Gorlin & Gorlin formula. Transaortic pressure was obtained by 2 invasive methods, namely conventional pullback method from the left ventricle (LV) towards the aorta (PM) with subsequent computerized superposition of the pressure curves, and (2) simultaneous method using a FFR wire introduced into the LV (SM).
Results: Reasons for inaccurate assessment by echocardiography were atrial fibrillation (75%) and/or low LV ejection fraction (38%). Results of evaluation of mean aortic valve gradient and aortic valve area are summarized in the table below. Agreement between methods (using the kappa coefficient) for severe aortic stenosis defined by an aortic-valve area < 0.6 cm^2/m^2 was 0.36 between SM and PM, 0.07 between SM and TTE, and −0.12 between PM and TTE. These findings led to a decision to change therapeutic strategy in 8 patients (14%).
Conclusions: Simultaneous measurement of trans-aortic pressure using a FFR guidewire is feasible and may be an attractive and accurate method for evaluation of doubtful aortic stenosis.

	Simultaneous pressure	Pullback method	Echocardiographic measurements
Mean aortic valve gradient, mmHg	30.5±14.4	23.6±9.9	28.8±8.0
p vs Pullback	<0.0001	—	0.0002
p vs echo	0.241	—	—
Aortic valve area, cm^2/m^2	0.46±0.2	0.48±0.15	0.49±0.1
p vs Pullback	0.003	—	0.529
p vs echo	0.074	—	—

TCT-811

Hospitalisations costs of TAVI in Belgium. An analysis in one University Hospital

Diana De Graeve[1], Raf Van Gestel[2], Carmen Ryvers[1], Inez Rodrigus[3], Johan Bosmans[4]
[1]University Of Antwerp, Antwerpen, Belgium, [2]University of Antwerp, Turnhout, Antwerp, [3]Antwerp University Hospital, Edegem, Belgium, [4]University Hospital Antwerp, Antwert, Belgium

Background: Patients with severe aortic stenosis, but who are not good candidates for surgical aortic valve replacement can be treated with trans-catheter aortic valve implantation (TAVI). This latest technology however comes at a considerable cost. The objective of the current study is to calculate and analyse these costs.
Methods: Data were retrospectively collected from all patients who underwent a transaortic valve insertion in the University Hospital Antwerp from December 2007 until June 2011. Costs of hospitalisation were retrieved on the basis of invoices and patients characteristics from medical records. Costs were actualized to 2011 using 2011 tariffs and determinants analysed (Wilcoxon rank sum test and Spearman rho's correlation).
Results: 89 patients were included. Analyses are performed on 86 patients with complete cost data. All interventions were done by a single physician using Core Valve ®. Mean age of the patients was 82 years; 73% of patients are in NYHA 3 and 4. Mean costs amount to €38,521 (sd €8,587) with median costs only slightly smaller (€37,079). The costs of the valve (€17,090 per valve) and daily nursing and hotel costs (€ 594 per day) are most important, amounting to respectively 46% and 26% of total costs. There is weak evidence of a learning effect: costs decrease somewhat over the years (p=0.091). Pulmonary hypertension (p=0.04) and hyperlipidemia (0.0049) have a siginificant association with costs as well. The distribution of costs is not significantly different for other background characteristics of the patient. (see table 1)

POSTERS